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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,864	07/14/2003	Koichiro Nakatani	115932	3812

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EXAMINER	
TRAN, BINH Q	

ART UNIT	PAPER NUMBER
3748	

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/617,864	NAKATANI ET AL.
	Examiner	Art Unit
	BINH Q. TRAN	3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 08/06/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: The abstract exceeds 150 words in length.

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
(e) the invention was described in-
(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-22 are rejected under 35 U.S.C. 102 (b) as being anticipated by Takahashi et al. (Takahashi) (Patent Number 6,679,050).

Regarding claims 1, and 12, Takahashi discloses an exhaust emission control method and apparatus for treating exhaust gas emitted from an internal combustion engine (1), comprising the steps of locating an emission control device in an exhaust gas passage of the internal combustion engine, the emission control device (e.g. 9) storing SOx when an air/fuel ratio of exhaust gas flowing through the emission control device is lean, and releasing the stored SOx when a temperature of the emission control device is raised to a desulfurization temperature or higher and the air/fuel ratio of the exhaust gas flowing through the emission control device becomes substantially equal to a stoichiometric air/fuel ratio or rich (e.g. See col. 4, lines 11-67; col. 5, lines 1-65); performing a temperature control process to control the temperature of the emission control device to be within a predetermined temperature range whose lower limit is substantially equal to or higher than a desulfurization temperature; and performing a desulfurization process to release sulfur from the emission control device by controlling the air/fuel ratio of the exhaust gas flowing through the emission control device to be substantially equal to the stoichiometric air/fuel ratio or rich when the temperature of the

emission control device is within the predetermined temperature range, wherein the temperature control process and the desulfurization process are repeated when sulfur is to be released from the emission control device (e.g. See col. 4, lines 11-67; col. 5, lines 1-67; cols. 6-7, lines 1-67; col. 8, lines 1-45).

Regarding claims 2, and 13, Takahashi further discloses that in the temperature control process, the temperature of the emission control device is raised or lowered by controlling the air/fuel ratio of the exhaust gas flowing through the emission control device (e.g. See col. 7, lines 5-67; col. 8, lines 1-45).

Regarding claims 3, and 14, Takahashi further discloses that wherein an amount of the exhaust gas flowing through the emission control device is larger in the temperature control process than that in the desulfurization process (e.g. See col. 7, lines 5-67; col. 8, lines 1-45).

Regarding claims 4, and 15, Takahashi further discloses that wherein the temperature control process and the desulfurization process are repeated until release of sulfur from the emission control device is finished (e.g. See col. 7, lines 5-67; col. 8, lines 1-45).

Regarding claims 5, and 16, Takahashi further discloses that wherein the temperature control process and the desulfurization process are repeated until a total time of execution of the desulfurization process reaches a set value (e.g. See col. 7, lines 5-67; col. 8, lines 1-45).

Regarding claims 6, and 17, Takahashi further discloses that wherein the temperature control process and the desulfurization process are repeated a predetermined number of times (e.g. See col. 7, lines 5-67; col. 8, lines 1-45).

Regarding claims 7, and 18, Takahashi further discloses that wherein the temperature control process continues for a first predetermined period of time and the desulfurization process continues for a second predetermined period of time (e.g. See col. 7, lines 5-67; col. 8, lines 1-45).

Regarding claims 8, and 19, Takahashi further discloses that wherein at least one of the first predetermined period of time and the second predetermined period of time is determined depending upon an operating state of the internal combustion engine (e.g. See col. 14, lines 1-67; col. 15, lines 1-23).

Regarding claims 9, and 20, Takahashi further discloses that wherein the first predetermined period of time for the temperature control process is corrected according to a rate of increase or decrease of the temperature of the emission control device, and the second predetermined period of time for the desulfurization process is corrected according to a speed of release of sulfur from the emission control device (e.g. See col. 7, lines 5-67; col. 8, lines 1-67; col. 9, lines 1-67).

Regarding claims 10, and 21, Takahashi further discloses that wherein the air/fuel ratio of the exhaust gas flowing through the emission control device is controlled in the temperature control process according to a rate of increase or decrease of the temperature of the emission control device, and the air/fuel ratio of the exhaust gas flowing through the emission control device is controlled in the desulfurization process according to a speed of release of sulfur from the emission control device (e.g. See col. 7, lines 5-67; col. 8, lines 1-67; col. 9, lines 1-67).

Regarding claims 11, and 22, Takahashi further discloses that wherein the emission control device comprises a NOx storage agent that stores NOx when the air/fuel ratio of

the exhaust gas flowing through the NOx storage agent is lean, and releases the stored NOx for reduction and removal when the air/fuel ratio of the exhaust gas flowing through the NOx storage agent is reduced and a reductant is present in the exhaust gas (e.g. See col. 18, lines 5-67; col. 19, lines 1-67).

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of three patents:

Okada et al. (Patent Number 6644021), Hirota et. al. (Patent Number 6502391), and Cullen et al. (Patent Number 5832722) all discloses an exhaust gas purification for use with an internal combustion engine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Q. Tran whose telephone number is (703) 305-0245. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (703) 308-2623. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.

BT
August 06, 2004

Binh Q. Tran
Patent Examiner
Art Unit 3748